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MAGSAT DATA INVESTIGATION M-004

An investigation of Magsat and complementary data emphasizing Precambrian
shields and adjacent areas of West Africa and South America.

Quarterly report^{1/} covering activities of the investigation
during the period October 1 through December 31, 1982.

(E83-10243) AN INVESTIGATION OF MAGSAT AND
COMPLEMENTARY DATA EMPHASIZING PRECAMBRIAN
SHIELDS AND ADJACENT AREAS OF WEST AFRICA
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compliance with U.S. Geological Survey standards or nomenclature.

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1. Introduction

This report on Magsat Data Investigation M-004 covers the period October 1 through December 31, 1982.

2. Problems

No new problems were encountered during the period.

3. Accomplishments

(1) Presenting MAGSAT data and preliminary results emphasizing Africa, Latin America and the Caribbean to geologists in Jamaica, Guyana, Brazil and Argentina during September-October. Conferring with scientists in Latin America and the Caribbean on MAGSAT data and their interpretation.

A. Jamaica: I presented an oral seminar to the Geology Department of the University of the West Indies at Mona. A member of the Jamaican Geological Survey was also present at this seminar. The presentation was along the lines of my paper in the April 1982 issue of Geophysical Research Letters, modified to include the material covered in my presentation at the Latin American Geological Congress. The interest was greater than expected; there is interest in being kept informed of any materials being written on the subject. Some discussions on my preliminary interpretations took place during my visit to the Department.

B. Guyana: I presented an oral seminar to the Geology and Mines Department, in Georgetown. The subject matter was similar to

that presented in Jamaica, but with the area of concentration changed to the Guyana shield and other Precambrian shields of Africa and South America. There was an offer of collaboration on final interpretation, at least on the aspects concerning the environment around Guyana. Some discussion of preliminary interpretations took place during my stay in Georgetown.

- C. Brazil: I presented a similar seminar at the Instituto de Pesquisas Espaciais (Institute of Space Research) in Sao Jose dos Campos, near Sao Paulo. I also conferred with Dr. Eduardo Damasceno at the University of Sao Paulo (who is the coordinator of the new Metallogenic map of Brazil), and Dr. Eberhard Wernick at the State University of Sao Paulo at Rio Claro who is a major figure in Precambrian tectonics and metallogenesis in Brazil. These people, as well as some of their colleagues with whom I had a chance to confer, are interested in collaborating in linking computer modeling of MAGSAT data to tectonic and metallogenic interpretation for South America.
- D. Argentina: I attended the 5th Latin American Geological Congress in Argentina, where I presented a report on "An interpretation of the preliminary total-field MAGSAT anomaly map" emphasizing Latin America. Again, the interest in the MAGSAT data and their interpretation was strong. At the meeting I had the chance to meet Ing. J. Febrer of the Argentine Space Research Institute, who became a MAGSAT convert at the Edinburgh IAGA meeting, and who is interested in going over

the final interpretation on southern South America.

- (2) Modeling has continued, with the preparation of a synopsis tectonic map of South America (based primarily on the map prepared by the Commission for the Geological Map of the World, distributed in the USA by the Geological Society of America) and the initiation of semi-final modeling of northern South America. Work is in progress, not ready for reporting upon.

4. Significant Results

During the period no significant results were confirmed well enough to merit reporting upon.

5. Publications

"An interpretation of the preliminary total field MAGSAT anomaly map." Fifth Latin American Geological Congress Abstracts, Buenos Aires, p. 199-200, October 17-22, 1982.

"A look at the preliminary MAGSAT anomaly map, emphasizing Africa" (by D. A. Hastings). Proceedings of the 6th Conference on African Geology, Nairobi, Kenya, December 11-19, 1982.

Ancillary writings on tectonics and metallogenesis in Africa published as a special issue of Geoexploration (D. A. Hastings, special editor) vol. 20, Nos. 3/4. The papers included:

"On the tectonics and metallogenesis of West Africa: Africa: a model incorporating new geophysical data" (by D. A. Hastings) p. 295-327. "On the availability of geoscientific data and scientific collaborators of and in Africa" (by D. A. Hastings) p. 201-205.

"Integration of satellite and conventional geophysical data with tectonic and structural information over the African continent" (by B. K. Jain and R. D. Ragan) p. 233-258. This paper uses POGO data, as the work was performed before the availability of MAGSAT data.

6. Recommendations

I have no new recommendations at this time. See page 5.

7. Funds Expended

October 1 1982 - December 31 1982.

8. Data Utility

I have no new comments on this topic at this time.